

<b>AWARD NUMBER:</b>	W81XWH-15-1-0042
<b>TITLE:</b>	Psychobiological Assessment and Enhancement of Team Cohesion and Psychological Resilience in ROTC Cadets Using a Virtual-Reality Team Cohesion Test
<b>PRINCIPAL INVESTIGATOR:</b>	Josh Woolley MD/PhD
<b>CONTRACTING ORGANIZATION:</b>	NORTHERN CALIFORNIA INSTITUTE SAN FRANCISCO, CALIFORNIA
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14. ABSTRACT  The majority time this reporting period was spent developing and testing the protocol of our study. This included training research staff, piloting study tasks, validating the quality of data collected. After developing our initial study tasks, we successfully enrolled and completed 36 participants over the course of six weeks, a total of twelve triads. These triads provided us with important information regarding the updating and fine-tuning of our protocol as well as our first steps for data storage and analysis.					
15. SUBJECT TERMS Team cohesion, oxytocin, ROTC, psychophysiology, hormone, trauma, prosocial, unit, psychosocial,					
16. SECURITY CLASSIFICATION OF: UNLIMITED DISTRIBUTION A			17. LIMITATION OF ABSTRACT  Unclassified	18. NUMBER OF PAGES  22	19a. NAME OF RESPONSIBLE PERSON USAMRMC
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1. **INTRODUCTION:** Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.

High military unit cohesion is a critical factor that enhances unit performance and promotes individual resilience to combat-related trauma. While much work has been done in defining, quantifying, and increasing unit cohesion, the precise psychobiological mechanisms that subserve unit cohesion remain unknown. The current project proposed a series of experiments that will: 1) Identify the psychological, behavioral, physiological, and hormonal predictors and mechanisms of an individual's ability to develop cohesion in a group working together as a team; and 2) Determine if administration of the prosocial neuropeptide oxytocin enhances the development of team cohesion in Reserve Officer Training Corps (ROTC) cadets and midshipmen. Through a deeper understanding of the underlying psychobiological predictors and mechanisms of team cohesion, the prospective identification of individuals whose unique characteristics promote or inhibit the development of group cohesion will become possible. Furthermore, if oxytocin enhances the development of team performance and cohesion, it may become a powerful performance enhancing and clinical intervention as enhanced cohesion is associated with improved Warfighter performance and resilience, and decreased susceptibility to the negative health effects of trauma exposure and combat. This would lead to significant long-term benefits to soldiers, their families, and the military.

2. **KEYWORDS:** Provide a brief list of keywords (limit to 20 words).

Team, cohesion, oxytocin, ROTC, psychophysiology, hormone, trauma, prosocial, unit, psychosocial

- 3. ACCOMPLISHMENTS:** The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction.

**What were the major goals of the project?**

*List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project identify these dates and show actual completion dates or the percentage of completion.*

The current project proposed a series of experiments that will: 1) Identify the psychological, behavioral, physiological, and hormonal predictors and mechanisms of an individual's ability to develop cohesion in a group working together as a team; and 2) Determine if administration of the prosocial neuropeptide oxytocin enhances the development of team cohesion in reserve Officer Training Corps (ROTC) cadets and midshipmen. Through a deeper understanding of the underlying psychobiological predictors and mechanisms of team cohesion, the prospective identification of individuals whose unique characteristics promote or inhibit the development of group cohesion will become possible. Furthermore, if oxytocin enhances the development of team performance and cohesion, it may become a powerful performance enhancing and clinical intervention as enhanced cohesion is associated with improved Warfighter performance and resilience and decreased susceptibility to the negative health effects of trauma exposure and combat. This would lead to significant long-term benefits to soldiers, their families, and the military.

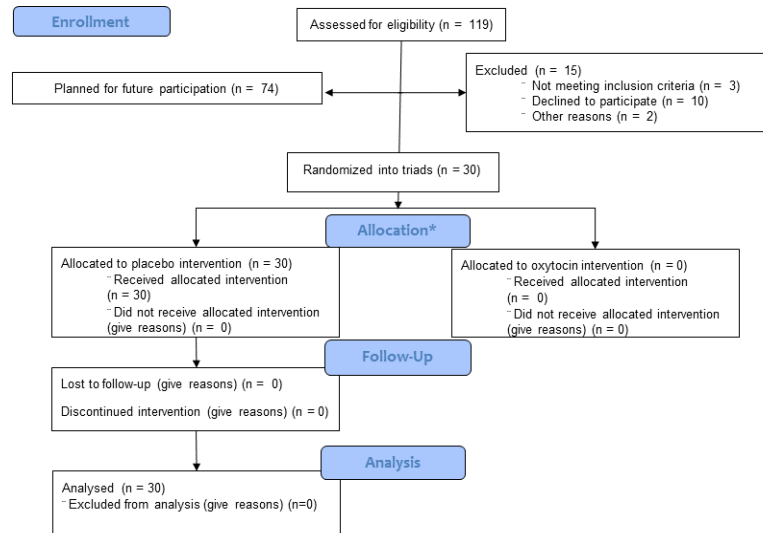
The goals for the first 12 months of this project have been to complete all preparation for the proposed experiments by: 1) Performing functionality test of study tasks; 2) Training research assistants on study protocol; 3) Focus on study recruitment.

**What was accomplished under these goals?**

*For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met. Description shall include pertinent data and graphs in sufficient detail to explain any significant results achieved. A succinct description of the methodology used shall be provided. As the project progresses to completion, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.*

The majority time this year was spent developing and testing the feasibility of our study. After developing our initial study tasks, we successfully enrolled and completed 30 participants over the course of six weeks, a total of ten triads (see Figure 1 for a consort diagram). These triads provided us with important information regarding the updating and fine-tuning of our protocol as well as our data storage and analysis plan.

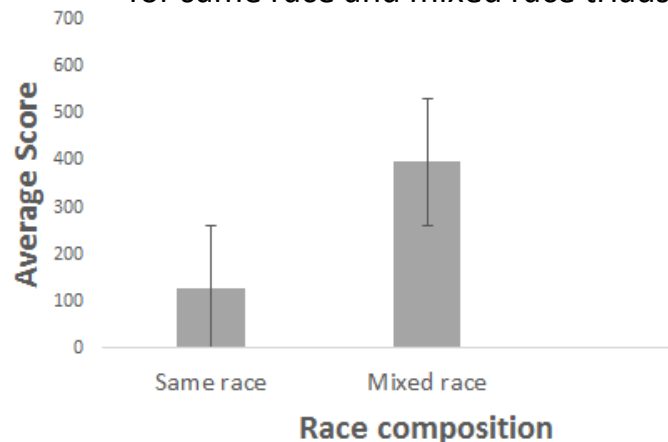
**Figure 1.**  
Recruitment Progress: Consort Diagram



\*Pilot participants all allocated to placebo intervention

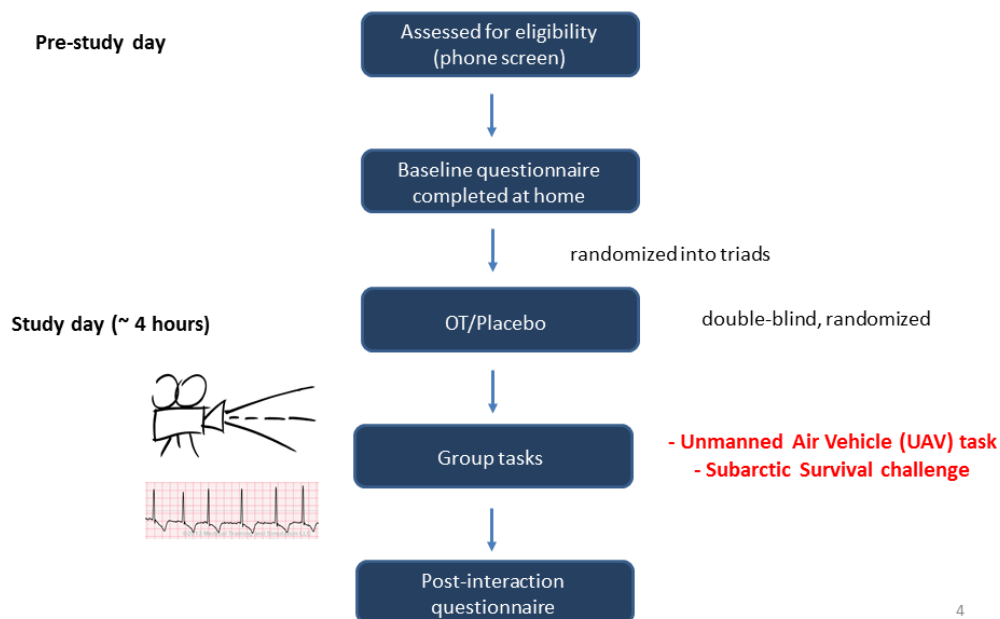
Thus far, ten triads have been run at the San Francisco VA Medical center as part of the piloting phase of the study. Participants are aged 18-26 years (mean age 22.80 years), and the triads consist of 4 all male and 6 all female triads. 23.33% of the triad participants are Caucasian, 43.33% Asian, 16.67% Latino, 3.33% African-American, and 13.33% Other. This resulted in 3 all same race triads, and 7 mixed race triads. No gender differences were observed ( $ps > .05$ ), while mixed race triads performed significantly better than same race triads,  $R^2 = .415$ ,  $p = .034$  (see Figure 2).

**Figure 2.** Average team scores (UAV task)  
for same race and mixed race triads



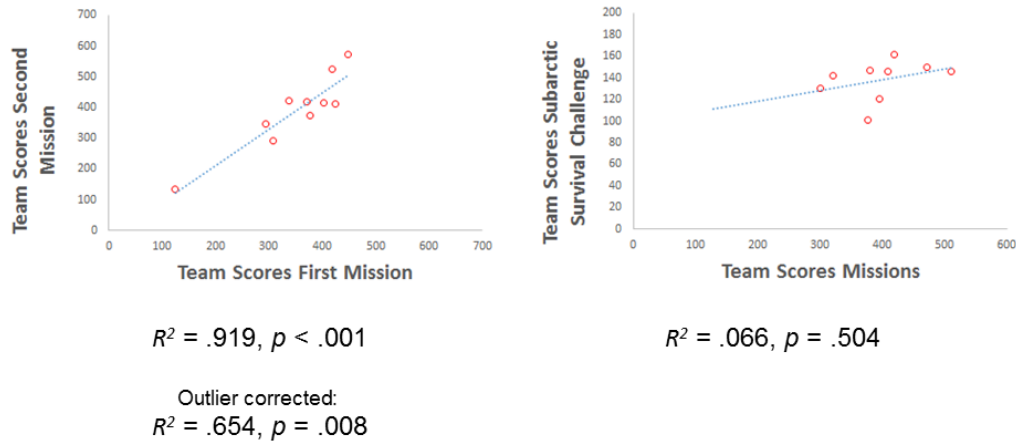
In the current, fine-tuned protocol, triads perform three missions, including a practice mission, of an Unmanned Air Vehicle (UAV) task. During this task, participants have to work together and communicate effectively in order to take as many photos as possible of designated targets while flying a virtual air vehicle. No individual has access to all the necessary information or controls, so operating as a team is crucial towards the group's success. Additionally, triads perform the Subarctic Survival Task (SST), during which they are given a crash-landing scenario and have to rank a list of items from most important to least important for the team's survival. They complete the list first as individuals and then create a new single list as a team. Interspersed with these tasks, the triads perform a get-to-know-each other and a trust game, and fill in some questionnaires. In particular, the UAV and SST tasks are designed to measure cohesion and interaction between groups. During all tasks, video and audio is recorded simultaneously with physiological responses (heart rate, impedance, skin conductance). This physiological data is still in pre-processing phase and will be analyzed in the future. See Figure 3 for a schematic summary of the study protocol.

**Figure 3.**  
Design & Methodology: study flow

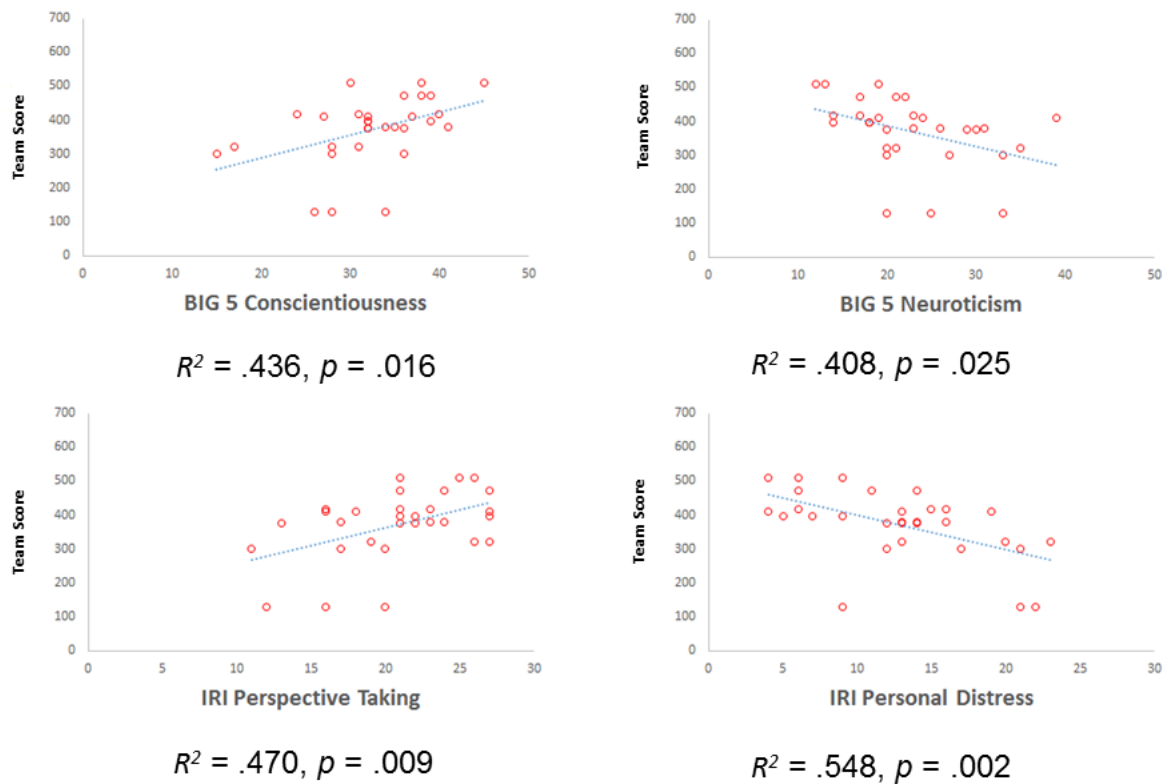


Preliminary data of the first ten triads suggest that team scores on both missions of the UAV task are highly correlated, while scores of the UAV task do not correlate with team scores on the subarctic survival task (see Figure 4). Additionally, scores on questionnaires that are administered before and after the team tasks, including empathy, personality, and IQ questionnaires, are correlated with either the UAV (see Figure 5) or subarctic survival task (see Figure 6).

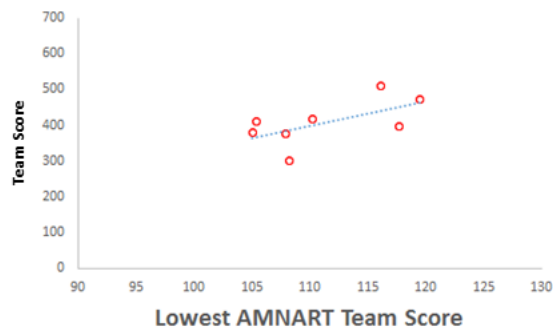
**Figure 4. Correlations between tasks**



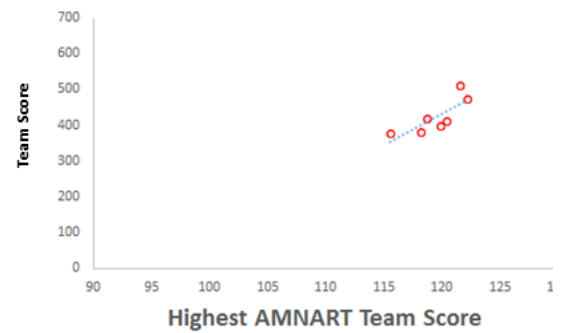
**Figure 5. Correlations of UAV scores with pre-experiment questionnaires**  
*[Big 5 Personality Test: Measure of five factor model of personality, IRI (Interpersonal Reactivity Index): empathy test, AMNART (American version of the National Adult Reading Test): estimate of verbal IQ]*







$$R^2 = .571, p < .001$$



$$R^2 = .911, p = .001$$

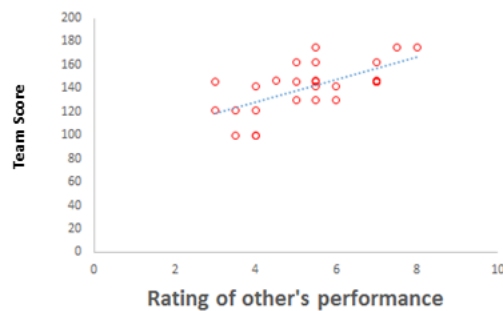
*Figure 6. Correlations of subarctic survival scores with pre- and post-experiment questionnaires*

#### Pre-experiment data

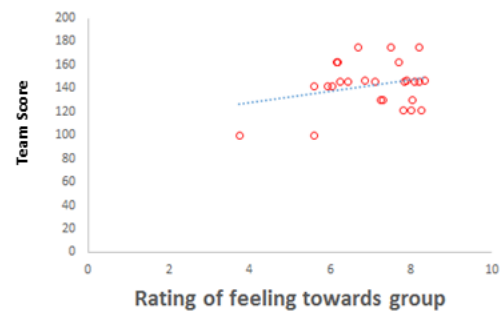


$$R^2 = .427, p = .026$$

#### Post-experiment data



$$R^2 = .435, p = .026$$



$$R^2 = .541, p = .006$$

These data indicate that the two team tasks require different skills and personality traits, and that their performance is predicted by distinct features. Furthermore, personality traits that are theoretically modified by oxytocin predict team performance. Overall, this suggests that we have developed a protocol with an array of team performance tasks, and are poised to address our main objectives, i.e. 1) What are the psychobiological predictors and mechanisms of team performance?. 2) Can oxytocin administration improve team cohesion?

We have successfully met all study goals for the first 12 months of this study. By examining the preliminary data collected from the first 10 triads, we have refined our study protocol and resolved initial difficulties with study timing and data quality. First of all, the ten triads that were run thus far posed several challenges concerning timing and order of the tasks, forcing us to adapt our protocol. We have found that the UAV task is good at measuring the team's ability to cooperatively complete a task, while the SST task is better at analyzing group dynamics and how each participant socially interacts with the others. Furthermore, we have worked extensively on fine-tuning instructions, making sure that all tasks are comprehensible for participants, while remaining vague enough for necessary group discussion and interaction.

Finally, we have set up video cameras and microphones in the experiment room that allow for recording of fine-grained behavior. Simultaneously, all participants are connected to wireless recording of physiological channels. In regards to data management, we have put together a plan and protocol for data storage and analysis. We are developing a protocol aimed at effectively and efficiently compiling and synching up behavioral and physiological data, and preparing this data for analysis. This is important because we will run a large amount of triads and the experiment data per triad is extensive (comprising of on average three hours of behavioral and physiological recordings). We have also trained a team of research assistants in processing and cleaning physiological data. This data pipeline will allow us to process and organize data as it is collected.

More recently, we have been focusing on recruiting and enrolling participants to meet our second and third year goals of completing enrollment. We have requested approval from the DoD to add an additional study site that is more accessible to our target population, allowing us to significantly increase enrollment in the coming months.

**What opportunities for training and professional development has the project provided?**

*If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. “Training” activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. “Professional development” activities result in increased knowledge or skill in one’s area of expertise and may include workshops, conferences, seminars, study groups, and individual study. Include participation in conferences, workshops, and seminars not listed under major activities.*

Our current research assistants have gained significant professional developments in the past year. The research staff has increased their knowledge in the following areas:

- Development of study protocols
- Researching and piloting study tasks
- Recruiting, consenting, and running study participants
- Psychophysiological data collection and processing
- Research compliance
- Management of a clinical research study

**How were the results disseminated to communities of interest?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe how the results were disseminated to communities of interest. Include any outreach activities that were undertaken to reach members of communities who are not usually aware of these project activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.*

Nothing to report.

**What do you plan to do during the next reporting period to accomplish the goals?**

*If this is the final report, state “Nothing to Report.”*

*Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.*

With a refined protocol, we plan to focus on recruiting and enrolling participants to meet our second and third year goals of completing enrollment. We have requested approval from the DoD to add an additional study site that is more accessible to our target population, allowing us to significantly increase enrollment in the coming months.

- 4. IMPACT:** Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:

**What was the impact on the development of the principal discipline(s) of the project?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research in the principal disciplinary field(s) of the project. Summarize using language that an intelligent lay audience can understand (Scientific American style).*

Nothing to report.

**What was the impact on other disciplines?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.*

Nothing to report.

**What was the impact on technology transfer?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including:*

- *transfer of results to entities in government or industry;*
- *instances where the research has led to the initiation of a start-up company; or*
- *adoption of new practices.*

Nothing to report.

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:*

- *improving public knowledge, attitudes, skills, and abilities;*
- *changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or*
- *improving social, economic, civic, or environmental conditions.*

Nothing to report.

5. **CHANGES/PROBLEMS:** The Project Director/Principal Investigator (PD/PI) is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, “Nothing to Report,” if applicable:

**Changes in approach and reasons for change**

*Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.*

**Recruitment and Retention:**

Thus far, recruitment has been limited to triads consisting of civilians. We are recruiting both male and female same-sex triads. Recruitment of triads has been challenging for several reasons. First, we require three participants to show up simultaneously. If one or more of them drop out, this would be detrimental for the experiment. Furthermore, tardiness also proved to be a big issue because of the duration of the experiment (3.5 hours on average) and waiting time for the other participants. In order to solve these issues, we decided to reward participants for showing up on time (i.e. within 15 minutes of the start of the experiment). Secondly, we designed an additional study that can be run simultaneously with the triad study and can be performed individually. In order to increase the probability of three people always being present to run a triad, we actually recruit four participants. In case the fourth participant shows up, this participant is assigned to the individual study. The same is done in case only two people or one person show(s) up. Third, we have proposed an amendment to the DoD to add UC Berkeley as an additional study site to run subjects. Due to the distant location of the SFVA, UC Berkeley’s centralized location will allow more convenient travel for potential ROTC recruits in the area. Thus far, we have obtained the required approvals through both UCSF and UC Berkeley and are currently awaiting approval from the DoD. While waiting for DoD approval, we have been making preparations that will allow us to relocate as soon as possible.

Storing of large data files: When preparing the collected data for data analysis, it became apparent that storage of the data files would have to be carefully considered. Because we are video- and audio-recording experimental sessions that can take up to four hours per triad, we are dealing with large data files that need to be stored. Furthermore, we are planning to run at least 40 triads, making consistent storage a priority. We are developing a protocol for storage, and are preparing the data for data analysis to verify and fine-tune our protocol.

**Actual or anticipated problems or delays and actions or plans to resolve them**

*Describe problems or delays encountered during the reporting period and actions or plans to resolve them.*

Recruitment and retention: Thus far, recruitment has been limited to triads consisting of civilians. We are recruiting both male and female same-sex triads. Recruitment of triads has been challenging for several reasons. First, we require three participants to show up simultaneously. If one or more of them drop out, this would be detrimental for the experiment. Furthermore, tardiness also proved to be a big issue because of the duration of the experiment (3.5 hours on average) and waiting time for the other participants. In order to solve these issues, we decided to reward participants for showing up on time (i.e. within 15 minutes of the start of the experiment). Secondly, we designed an additional study that can be run simultaneously with the triad study and can be performed individually. In order to increase the probability of three people always being present to run a triad, we actually recruit four participants. In case the fourth participant shows up, this participant is assigned to the individual study. The same is done in case only two people or one person show(s) up.

Storing of large data files: When preparing the collected data for data analysis, it became apparent that storage of the data files would have to be carefully considered. Because we are video- and audio-recording experimental sessions that can take up to four hours per triad, we are dealing with large data files that need to be stored. Furthermore, we are planning to run at least 40 triads, making consistent storage a priority. We are developing a protocol for storage, and are preparing the data for data analysis to verify and fine-tune our protocol.

**Changes that had a significant impact on expenditures**

*Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.*

Given that the first year of this study was mostly dedicated to developing our study protocol, we kept a modestly sized study staff, enabling us to meet our year one objectives at less cost than anticipated.

**Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents**

*Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.*

**Significant changes in use or care of human subjects**

No significant changes to report.

**Significant changes in use or care of vertebrate animals.**

N/A

**Significant changes in use of biohazards and/or select agents**

No significant changes to report.

**6. PRODUCTS:** List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state “Nothing to Report.”

- **Publications, conference papers, and presentations**  
Report only the major publication(s) resulting from the work under this award.

**Journal publications.** *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Nothing to report.



**Books or other non-periodical, one-time publications.** *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: Author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Nothing to report.

**Other publications, conference papers, and presentations.** *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (\*) if presentation produced a manuscript.*

Nothing to report.

- **Website(s) or other Internet site(s)**

*List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.*

N/A

- **Technologies or techniques**

*Identify technologies or techniques that resulted from the research activities. In addition to a description of the technologies or techniques, describe how they will be shared.*

Nothing to report.

- **Inventions, patent applications, and/or licenses**

*Identify inventions, patent applications with date, and/or licenses that have resulted from the research. State whether an application is provisional or non-provisional and indicate the application number. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.*

Nothing to report.
--------------------

- **Other Products**

*Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment, and/or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:*

- *data or databases;*
- *biospecimen collections;*
- *audio or video products;*
- *software;*
- *models;*
- *educational aids or curricula;*
- *instruments or equipment;*
- *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
- *clinical interventions;*
- *new business creation; and*
- *other.*

Nothing to report.
--------------------

## 7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

### What individuals have worked on the project?

*Provide the following information for: (1) PDs/PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort). If information is unchanged from a previous submission, provide the name only and indicate “no change.”*

Name:	Josh Woolley, MD/PhD Unchanged
Name:	Sophia Vinogradov, MD Unchanged
Name:	Thomas Neylan, MD Unchanged
Name:	Wendy Mendes, PhD Unchanged
Name:	Jennifer Mitchell, PhD Unchanged
Name:	Lily Dobberteen Unchanged
Name:	Jennifer Koh Unchanged
Name:	Lize De Coster, PhD
Project Role:	Post-Doctoral Scholar
Nearest person month worked:	15
Contribution to Project:	Managing study, data analysis and manuscript preparation, supervising research associates.
Name:	Zane Ravenholt
Project Role:	Research assistant
Nearest person month worked:	9
Contribution to Project:	Study management
Name:	Lily Radanovich
Project Role:	Research assistant
Nearest person month worked:	1
Contribution to Project:	Study management

**Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*If the active support has changed for the PD/PI(s) or senior/key personnel, then describe what the change has been. Changes may occur, for example, if a previously active grant has closed and/or if a previously pending grant is now active. Annotate this information so it is clear what has changed from the previous submission. Submission of other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. The awarding agency may require prior written approval if a change in active other support significantly impacts the effort on the project that is the subject of the project report.*

Nothing to Report.

**What other organizations were involved as partners?**

*If there is nothing significant to report during this reporting period, state “Nothing to Report.”*

*Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that were involved with the project. Partner organizations may have provided financial or in-kind support, supplied facilities or equipment, collaborated in the research, exchanged personnel, or otherwise contributed.*

*Provide the following information for each partnership:*

Organization name:	University of California, Berkeley
Location of Organization:	Berkeley, California
Contribution to Project:	Facilities
	***DoD approval pending***

## **8. SPECIAL REPORTING REQUIREMENTS**

**COLLABORATIVE AWARDS:** For collaborative awards, independent reports are required from BOTH the Initiating PI and the Collaborating/Partnering PI. A duplicative report is acceptable; however, tasks shall be clearly marked with the responsible PI and research site. A report shall be submitted to <https://ers.amedd.army.mil> for each unique award.

**QUAD CHARTS:** If applicable, the Quad Chart (available on <https://www.usamraa.army.mil>) should be updated and submitted with attachments.

Quad Chart Attached.

9. **APPENDICES:** Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.

Quart Chart Attached



# Psychobiological Assessment and Enhancement of Team Cohesion and Psychological Resilience using a Virtual Team Cohesion Test

JW140070, W81XWH-15-1-0042



**PI:** Dr. Josh Woolley, MD, PhD **Org:** Northern California Institute for Research and Education (NCIRE)

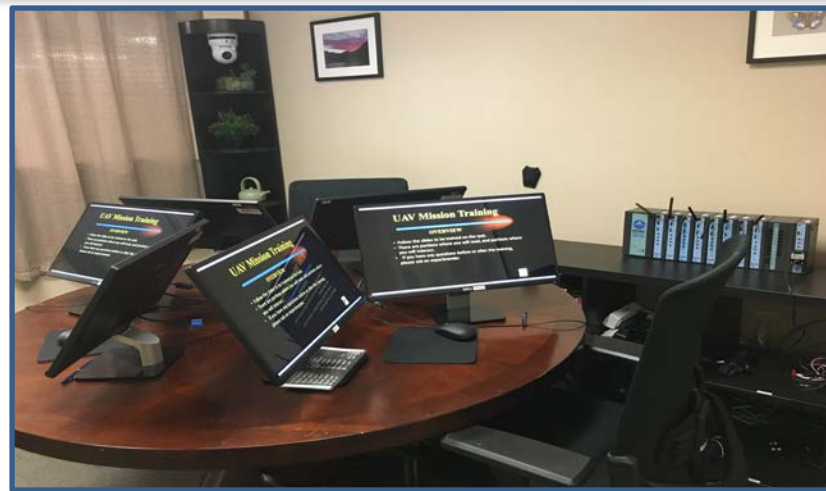
**Award Amount:** \$437,514 (Directs + F&A)

## Study/Product Aim(s)

- Identify the psychological, behavioral, and physiological predictors and mechanisms of team cohesion
- Examine if oxytocin administration enhances the development of group cohesion.
- Determine if oxytocin administration improves individual performance on social cognition tasks.

## Approach

This is a randomized, double-blinded, placebo-controlled trial assessing the efficacy of a single administration of intranasal oxytocin dosed at 20 International Units (IU), to Reserve Officers' Training Corps (ROTC) cadets and healthy volunteers to investigate if administration of oxytocin enhances team cohesion. Cohesion is then measured using: 1) A cooperative, virtual-reality UAV flying mission, 2) the Subarctic Survival Situation task, and 3) the weakest link coordination task. To measure biobehavioral synchrony, autonomic physiology will be recorded. Behavior will be recorded and analyzed within the tasks using video recordings.



**Accomplishment:** Trained research assistants on all study task roles. Continuing to enroll participants and have successfully completed preliminary triads. Beginning to improve and develop study protocol to streamline enrollment. Beginning to analyze data.

## Timeline and Cost

Activities	CY	1	2	3
Design/Implement study protocol		<div><div></div></div>		
Enroll study participants		<div><div></div></div>		
Analyze behavioral data		<div><div></div></div>		
Analyze physiological data		<div><div></div></div>		
<b>Estimated Budget (\$1,312,556)</b>		<b>\$437,514</b>	<b>\$447,583</b>	<b>\$427,459</b>

## Goals/Milestones

### CY1 Goal – Design Tasks and Recruit Participants

- ☒ Functionality test of study tasks
- ☒ Train research assistants on study protocol
- ☒ Focus on enrollment of participants

### CY2 Goals – Increase Enrollment of Study Participants

- ☐ Continue enrollment of participants
- ☐ Validate and analyze behavioral/physiological data

### CY3 Goal – Complete Recruitment and Data Analysis

- ☐ Complete enrollment of study participants
- ☐ Complete behavioral/physiological data analysis

## Comments/Challenges/Issues/Concerns

- Target Y1 Enrollment: 16 Triads (48 participants total)
- Actual Y1 Enrollment: 12 Triads (36 participants total)

### Budget Expenditure to Date (06/28/2016)

Projected Expenditure: \$437, 514 (Directs + F&A)

Actual Expenditure: \$251, 255 (Directs + F&A)

**Updated:** June 30, 2016